

PORTULACA MATTHEWSII (PORTULACACEAE),  
A NEW SPECIES FROM THE “SIERRA GORDA”  
BIOSPHERE RESERVE, QUERÉTARO, MEXICO<sup>1</sup>

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ABSTRACT

*Portulaca matthewsii* is proposed and described as a new species. It belongs to subg. *Portulaca* sect. *Catoclasia* subsect. *Conocarpae*, and has been collected in the northern part of the “Sierra Gorda” Biosphere Reserve, in the Mexican state of Querétaro. The new taxon primarily differs from the known Mexican species of this subsection by the fibrous roots and by the stellate-tuberculate surface of the seed.

KEY WORDS: Mexico, *Portulaca*, Portulacaceae, Querétaro, “Sierra Gorda” Biosphere Reserve

RESUMEN

Se propone y describe a *Portulaca matthewsii* como especie nueva para la ciencia. Este taxon se ubica en el subgénero *Portulaca*, sección *Catoclasia*, subsección *Conocarpae*, y ha sido colectada en la porción norte de la Reserva de la Biosfera “Sierra Gorda”, en el estado mexicano de Querétaro. La entidad nueva se diferencia de las especies de la subsección conocidas para México por la presencia de raíces fibrosas, así como por la superficie de la semilla que es estelulado-tuberculada.

PALABRAS CLAVE: México, *Portulaca*, Portulacaceae, Querétaro, Reserva de la Biosfera “Sierra Gorda”

During preparation of the treatment of Portulacaceae for the *Flora del Bajío y de Regiones Adyacentes*, Mexico, some specimens of the genus *Portulaca* collected in the “Sierra Gorda” Biosphere Reserve in the state of Querétaro were detected to have a campanulate capsule operculum. This feature, in addition to others, places the specimens in subsect. *Conocarpae* D. Legrand (subg. *Portulaca* sect. *Catoclasia* D. Legrand (Legrand 1962)). (Even though Legrand’s approach is focused mainly in the American species of *Portulaca* and does not consider the variation presented by the genus in a global scale, his systematic arrangement has been very useful in characterizing the New World Portulacas; nevertheless, a modern revision for the whole genus is considered necessary). Beyond this placement, they could not be determined to species, so here they are proposed as:

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**Portulaca matthewsii** G. Ocampo, sp. nov. (**Fig. 1**). TYPE: MEXICO. QUERÉTARO. Municipality of Landa: Puerto del Gato, 3 km al W de Acatitlán de Zaragoza, bosque de encino, ladera de cerro, 1450 m, 29 Jul 1988, *E. González 44* (HOLOTYPE: IEB; ISOTYPES: MEXU, QMEX, XAL).

Herba perennis crassiuscula; radix fibrosa; caules usque ad 15 cm longi, prostrati vel decumbentes; folia alterna, subteretia, lanceolata, oblongo-lanceolata, oblanceolata vel elliptica, 3–10 mm longa, 0.6–2.5(–3) mm lata, apice acuta vel subacuta, aliquando obtusa; sepala deltata, rubra, (3–)3.5–4.5(–5) mm longa, 2.5–4(–4.5) mm lata; petala magentea vel purpurea, obovata vel oblongo-obovata, (4–)5.5–8 mm longa, (2.5–)3–4 mm lata; stamina (13–)16–28; stylus (3–)4–5 mm longus, lobis stigmatosis 3(–4); capsula (2.5–)3–4(–4.5) mm longa, operculum campanulatum; semina reniformia, nigra vel coracina, (0.5–)0.6(–0.7) mm longa, testa stellato-tuberculata.

Fleshy perennial herb with fibrous roots; stems several from the base, usually suffrutescent in their lower portion, prostrate to decumbent, 4–15 cm long, sparsely branched above, glabrous; axilar hairs scarce, 3–5(–6) mm long; leaves alternate; petiole 1–1.5(–2) mm long; lamina lanceolate, oblong-lanceolate or oblanceolate to elliptic, 3–10 mm long, 0.6–2.5(–3) mm wide, subterete in cross section, apex acute to subacute, rarely obtuse; flowers clustered in a head in groups of 4–7, subtended by an involucre of 6–8(–10) leaves, surrounded by hairs 3–4.5(–5) mm long; sepals reddish, deltate, clasping, (3–)3.5–4.5(–5) mm long, 2.5–4(–4.5) mm wide, apex acute, margin scarious; petals magenta to purple, obovate to oblong-obovate, (4–)5.5–8 mm long, (2.5–)3–4 mm wide, apex obtuse to emarginate, usually apiculate; stamens (13–)16–28; filaments connate at the base and forming a tube 0.6–0.8 mm long, the filaments (2–)2.5–3.5 mm long; anthers 0.4–0.6(–0.7) mm long; style (3–)4–5 mm long, stigma lobes 3(–4); fruiting pedicel 0.5–0.7 mm long; capsule (2.5–)3–4(–4.5) mm long, 2–3 mm in diameter, circumscissile in the lower third; operculum campanulate; seeds (0.5–)0.6(–0.7) mm long, reniform, black to bluish-black, testa with tubercles stellate at the base.

Additional specimens examined: **MEXICO. Querétaro. Municipality of Jalpan:** 3–4 km al N de La Parada, 20 Jun 1991, *B. Servín 1146* (IEB); ± 2 km de La Tinaja, camino a El Lindero, 15 Aug 1989, *E. Carranza 1976* (IEB). **Municipality of Landa:** ± 0.5 km al SW de El Lobo, 15 Aug 2002, *G. Ocampo & E. Pérez 1202* (IEB); 1 km al SW de El Lobo, 1 Aug 1987, *J. Rzedowski 44051* (ENCB, IEB); ± 4 km al E de La Vuelta por la carretera a Xilitla, 25 Sep 2002, *S. Zamudio & V. Steinmann 12125* (IEB); along MEX 120, 5 km (by road) E of the turnoff to La Vuelta, 25 Sep 2002, *V. W. Steinmann & S. Zamudio 2832* (IEB); 12 km al SW de El Lobo, sobre la carretera a Landa, 1 Aug 1987, *J. Rzedowski 43969* (ENCB, IEB).

*Portulaca matthewsii* is found in the municipalities of Jalpan and Landa, Querétaro, in the northern portion of the “Sierra Gorda” Biosphere Reserve. This region is part of the Sierra Madre Oriental mountains system, and it is highly probable that the new entity also occurs in closely adjacent areas of the state of San Luis Potosí. The new species grows in rocky open places, on limestone substrate, in pine-oak forest, oak forest, oak-juniper forest and submontane scrub, as well as in grassland, from elevations of 1300 to 1600 m (4300–5200 ft). It has been collected with flowers and fruits from June to September. The local abun-



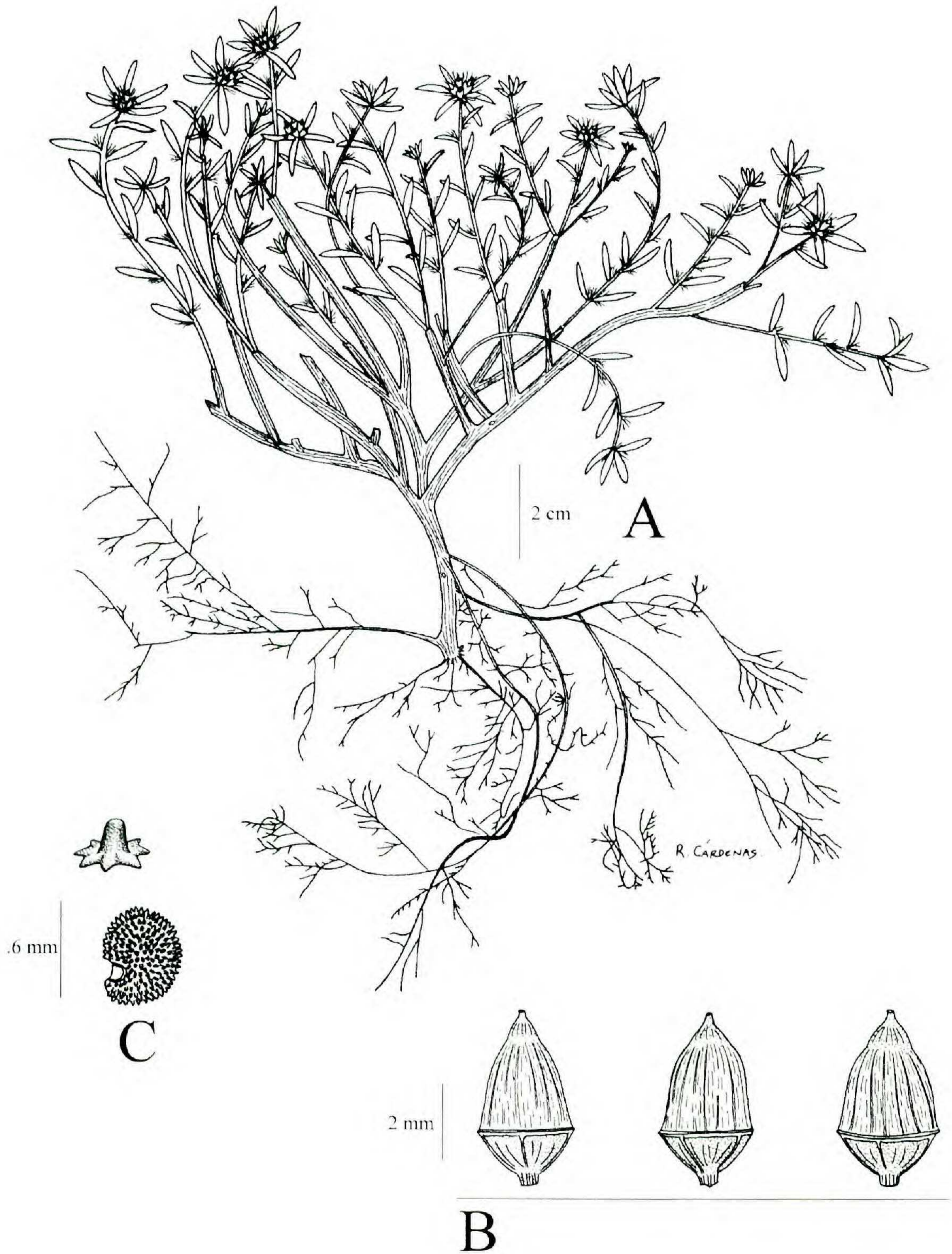


FIG. 1. *Portulaca matthewsii*. A. Habit. B. Capsules. C. Seed, showing a close-up to a tubercle.



TABLE 1. Comparison of *Portulaca matthewsii* with other species of subsection *Conocarpae* found in Mexico.

	<i>P. matthewsii</i>	<i>P. mexicana</i>	<i>P. rzedowskiana</i>	
<b>Root</b>	Fibrous	Fascicled, thickened, not suberous	Thickened, suberous	
<b>Stem</b>	4–15 cm long	to 10 cm long	4–26 cm long	
<b>Leaves</b>	Shape	Subterete, lanceolate, oblong-lanceolate or oblanceolate to elliptic	Flat to subterete, lanceolate, some times oblong-lanceolate to oblanceolate	
	Size	3–10 mm long 0.6–2.5(–3) mm wide	4–10 mm long 1.5–2 mm wide	4–20 mm long 1–3(–4.5) mm wide
	Apex	Acute to subacute	Subacute to obtuse	Acute
<b>Sepals</b>	(3–)3.5–4.5(–5) mm long 2.5–4(–4.5) mm wide	4.5–5 mm long 1.5–2 mm wide	(3–)4.5–6.5 mm long 4–5.5(–6.5) mm wide	
<b>Petals</b>	Color	Magenta to purple	Yellow	Pink to purple
	Size	(4–)5.5–8 mm long (–2.5)3–4 mm wide	4.5–6 mm long	(5.5–)6.5–11 mm long (3–)3.5–6(–7) mm wide
<b>No. of stamens</b>	(13–)16–28	14–21	22–44	
<b>Style</b>	Size	(3–)4–5 mm long	1.5–3 mm long	4.5–6(–8) mm long
	No. of stigma lobes	3(–4)	4–5	(3–)4–5(–6)
<b>Capsule</b>	(2.5–)3–4(–4.5) mm long	3–4.5 mm long	3.5–6 mm long	
<b>Seeds</b>	Color	Black to bluish-black	Black	Bluish-black
	Size	(0.5–)0.6(–0.7) mm long	0.5 mm long	0.6–0.7(–0.8) mm long
	Surface	Stellate-tuberculate	Diminutively tuberculate	Stellate
<b>Habitat</b>	Vegetation	Pine-oak forest, oak forest, oak-juniper forest, submontane, grassland	Desert scrub, grassland	Disturbed subtropical scrub, grassland
	Altitude	1300–1600 m (4300–5200 ft)	1800–2550 m (5900–8400 ft)	1600–2500 m (5200–8200 ft)
<b>Distribution</b>	Querétaro; possibly also San Luis Potosí	Central Mexico, (Colombia?, <i>P. solferina</i> Poelln.)	Michoacán, Estado de México, Morelos	



dance of this species is reported from scarce to abundant, so it can be considered that is not in danger of extinction at present.

The new taxon belongs to subg. *Portulaca* sect. *Catoclasia* D. Legrand subsect. *Conocarpae* D. Legrand. This subsection is characterized by the size of the capsules (2.5 to 5(-6) mm long), dehiscent in its lower third portion, by its campanulate to tubular-campanulate (rarely hemispherical) operculum, as well as by its linear to oblong-elliptic leaves that are sometimes more or less compressed (D. Legrand 1962). Only two species from this subsection were previously reported to occur in Mexico: *P. mexicana* P. Wilson (Torreya 28:29. 1928) and *P. rzedowskiana* Ocampo (Sida 20:487. 2002). *Portulaca matthewsii* primarily differs from these by having fibrous roots and by the stellate-tuberculate testa of the seed. In addition, *P. mexicana* is distinguished from *P. matthewsii* by its yellow petals, and terete, linear to sublinear leaves. *Portulaca rzedowskiana* differs from the new entity by its larger dimensions of sepals, petals and capsules; and higher number of anthers and stigma lobes (Table 1).

*Etymology*.—The new species is named in honor of James F. Matthews, whose research on *Portulaca* represents a very important contribution to the knowledge of the genus in North America.

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#### REFERENCE

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